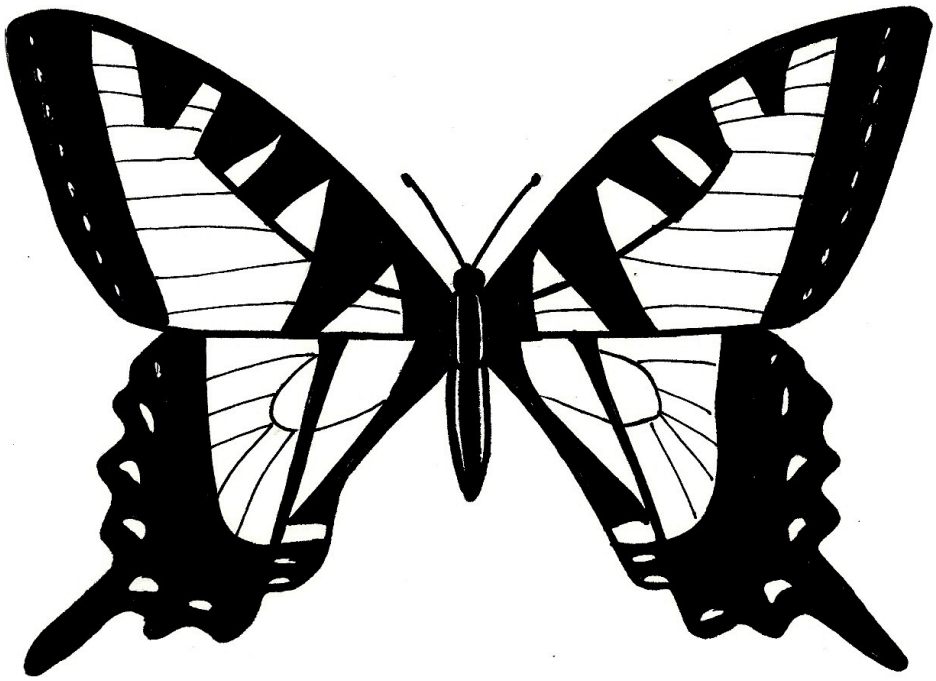
Butterfly Activity Guide

~for prairie butterflies in South Dakota~



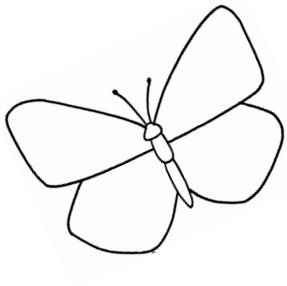
Guide Funded by: SD Game, Fish and Parks; Wildlife Diversity Small Grants Program

Prairie Butterfly Garden created in cooperation with the US Fish and Wildlife Service

Visit the South Dakota Prairie Butterfly Garden in the Oahe Downstream Recreation Area

http://www.fws.gov/southdakotafieldoffice/Butterfly_Garden.html

Butterfly Activity Guide: Table of Contents



*** Sketches in this Butterfly Activity Guide are adapted photographs with permission from Gary Marrone and Doug Backlund.

*** The *Field Guide to the Butterflies of South Dakota*, was a major source of information in this Butterfly Activity Guide with permission by Gary Marrone.

Butterfly Activity Guide: Preface to the Guide

Welcome to the Butterfly Activity Guide for prairie butterflies in South Dakota! This supplement can be utilized by the classroom teacher to increase awareness of local butterflies and their distribution within South Dakota. It is a quality product that is ready to use in the classroom to meet selected science standards. The materials can easily be adapted for any K-12 lessons. The activities provided include a list of ideas to choose from to make planning easier and allows for individuality.

In South Dakota schools, children learn about animal species on distant continents, but are often not aware of local species. Continual emphasis of the necessity of habitat for species survival is also beneficial. The **Dakota Skipper** and **Poweshiek Skipperling** are currently federal candidates for listing, and the **Regal Fritillary** is already classified as rare in South Dakota. Habitat loss is detrimental to the survival of butterflies due to their specific preferred plant requirements.

Objectives for the Butterfly Activity Guide

~ To engage youth in the world of butterfly observation!
~ To provide youth a tool to assist their investigations in the Prairie Butterfly Garden
~ To provide educators with resources to create lessons regarding local butterflies
~ To bring awareness to invertebrates that often go unnoticed
~ To demonstrate the link between presence of butterflies and the habitats they need

Enjoy the excitement of discovery as you join your students in their studies of butterflies in South Dakota!

~ Jennifer A. Fowler, Science Teacher at South Middle School in Rapid City, SD

The **Resource Page** in this guide lists many organizations with websites containing excellent butterfly activities. Each are full of educational activities to engage youth while meeting some of the SD Science Standards are provided.

Start with the following websites regarding South Dakota's butterflies:

SD Game, Fish & Parks Wildlife Diversity Program
http://gfp.sd.gov/wildlife/management/diversity/

US Fish and Wildlife Service South Dakota Ecological Services Field Office
http://www.fws.gov/southdakotafieldoffice/

South Dakota Prairie Butterfly Garden
http://www.fws.gov/southdakotafieldoffice/Butterfly_Garden.html

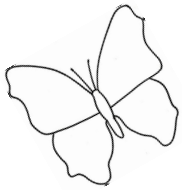
Butterflies and Moths of North America
http://www.butterfliesandmoths.org/

Butterfly Activity Guide: Butterfly Resources "Quick Reference"

Butterfly Websites:

South Dakota Prairie Butterfly Garden
http://www.fws.gov/southdakotafieldoffice/Butterfly_Garden.html

US Fish and Wildlife Service, Attracting Pollinators to Your Garden
http://www.fws.gov/pollinators/pdfs/PollinatorBookletFinalrevWeb.pdf



North American Butterfly Association www.naba.org

eNature www.enature.com

Journey North www.learner.org/jnorth

Monarch Watch www.monarchwatch.org

Pollinators Website; US Fish and Wildlife Service http://www.fws.gov/pollinators

Butterflies and Moths of North America http://www.butterfliesandmoths.org/

Curriculum Guides: *** Full of AWESOME activities to use with kids!***

National Wildlife Federation and American Zoological Association Butterfly Activity Guide http://www.fs.fed.us/wildflowers/pollinators/monarchbutterfly/documents/BFCI/BFCI_ActivityGuide.pdf

Flight of the Butterflies Educator Guide
http://www.flightofthebutterflies.com/in-the-classroom/

Monarch Butterfly
http://www.fs.fed.us/wildflowers/pollinators/monarchbutterfly/documents/royal_mail/monarch_pub.pdf

Butterfly Conservatory Guide; American Museum of Natural History
http://www.amnh.org/content/download/38077/560728/file/butterfly_guide.pdf

Field Guides… Books for your wishlist!

Field Guide to the Butterflies of South Dakota, by Gary M. Marrone, SD GFP
Handbook for Butterfly Watchers, by Robert Michael Pyle
Family Butterfly Book, by Rick Mikula
Peterson Field Guide to Eastern Butterflies, by Paul A. Opler
Peterson Field Guide to Western Butterflies, by Paul A. Opler

Butterfly Activity Guide: South Dakota Science Content Standards

Using this Butterfly Activity Guide, portions of the following South Dakota Science Content Standards, adopted by the SD DOE on March 22, 2005, may be met. A teacher's use of this guide may also accomplish other standards not included in this list.
http://doe.sd.gov/ContentStandards/index.aspx

4th Grade SD Science Standards included in this guide:

4.L.1.2. Students are able to differentiate between vertebrates and **invertebrates**, and classify the five groups of vertebrates (mammal, reptile, amphibian, bird, and fish) based on characteristics.

4.L.2.1. Students are able to identify **behavioral and structural adaptations** that allow an animal to survive in a particular environment. Examples: hibernation and migration

4.L.2.2. Students are able to explain how a size of a **population** is dependent upon the available resources within its community.

4.L.3.1. Students are able to describe the **flow of energy** through **food chains and webs**.

5th Grade SD Science Standards included in this guide:

5.L.3.1. Students are able to describe how natural events and/or **human influences** may help or harm ecosystems. Example: biotic (over-population) and abiotic (floods)

5.L.3.2. Students are able to analyze the roles of organisms to determine the transfer of **energy using an energy pyramid**

model. Examples: producer, consumer, decomposer, herbivore, carnivore, omnivore, predator – prey

5.L.3.3. Students are able to describe how interrelationships enable some organisms to survive. **Adaptation, parasitism**, mutation

6th Grade SD Science Standards included in this guide:

6.L.1.2. Students are able to explain the importance and scientific use of a **classification system**.

Management of diversity for organization and categorization; Uniform scientific communication

- Kingdom, phylum, class, order, family, genus, species

6.S.2.1. Students are able, given a scenario, to identify the problems of **human activity** on the local, regional, or global environment. Examples: **urban expansion**, water treatment

7th Grade SD Science Standards included in this guide:

7.L.1.3. Students are able to **classify organisms** by using the currently recognized kingdoms.

Examples: monera, protista, plantae, fungi, animalia.

7.L.3.1. Students are able to predict the effects of **biotic and abiotic factors** on a species' survival.

Examples: **adaptations**, genetic defects, **population disturbances**, over-reproduction, **animal behavior**, flooding, global warming, oil spills, human activity.

7.S.2.1. Students are able, given a scenario, to **predict the consequences of human activity** on the local, regional, or global environment.

Butterfly Activity Guide: Butterfly Glossary

Butterfly Basics:

Lepidoptera = "scale winged" insect; the group including butterflies and moths
Symbiosis/Mutualism = when animals both benefit from each other's actions

Forewings = the front pair of wings
Hindwings = the back pair of wings
Antennae = the pair of segmented appendages attached to the head of a butterfly

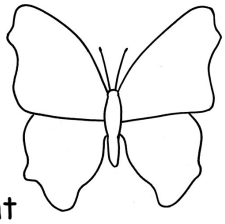
Federal Candidate for Listing = a species that is waiting for protection by the Endangered Species Act

Classification = organization method by scientists to group living things based on how they are related to each other

Conservation = to conserve means to save; we can act wisely to protect habitat for butterflies and other animals

Life Cycle Lingo:

Metamorphosis = the physical changes a butterfly goes through from egg to adult
Brood = a generation; some species of butterfly have more than one per summer



Larva = a caterpillar represents this stage for butterflies
Molt = when larvae/caterpillars shed their skin as they grow

Pupa = the chrysalis represents this stage for butterflies
Cremaster = the single stalk that attaches a chrysalis to part of a plant
Girdle = a "string" used to help hold a chrysalis to a plant

Migrate = when animals temporarily move to new areas with better conditions for survival
Overwinter = to hibernate by spending the winter months in a very reduced rate of activity

Feeding Facts:

Pollen = male reproductive cells of a plant
Pollination = when pollen is transferred from plant to plant by wind or animals
Carrion = dead animals often as food source for some butterfly species
Nectar = food source for most adult butterflies from flowers
Proboscis = the feeding tube used by adult butterflies

Butterfly Activity Guide: Interview with a Lepidopterist

Lepidopterist, Gary Marrone, is pleased to give us a glimpse into his world of butterflies! He is a retired fisheries biologist with South Dakota Game, Fish and Parks. His lifelong passion for butterflies has produced new discoveries in South Dakota as well as the book *Field Guide to Butterflies of South Dakota*.

What is a Lepidopterist?
A lepidopterist is someone who studies butterflies and moths that are in a group of insects called Lepidoptera.

At what age did you begin your studies?
I started chasing and collecting butterflies and other "bugs" at age 8 or 9 in Southern Iowa.

Who inspired your interest in butterflies?
My mother gave me homemade butterfly nets and bug jars and encouraged me to observe and enjoy the "little things (critters) in life."

What butterfly is most interesting to you?
It is difficult to select just one! The butterflies with the "camo" undersides such as the Compton Tortoiseshell and Mourning Cloak are interesting to me. They use that pattern to protect themselves from predators, mostly birds. I recall chasing my first Compton Tortoiseshell at Sica Hollow in Roberts County that landed on a tree trunk and blended in so well that it "disappeared."

Have you discovered any new species?
I described and named a new subspecies of the Mormon Fritillary that is only found in the Black Hills. It is called the Dakota Fritillary, *Speyeria mormonia kimimela*.

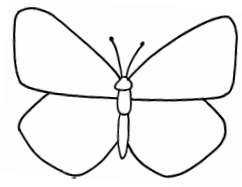
What is a favorite butterfly experience?
On a cool spring day, I found my second Compton Tortoiseshell hibernating in Cement Ridge Fire Lookout Station just inside Wyoming from Lawrence County. Several South Dakota butterfly species actually overwinter as adults!

Where are some of your favorite places in South Dakota to look for butterflies?
Sica Hollow State Recreation Area in Marshall and Roberts Counties have several woodland butterfly species not found outside northeastern South Dakota and the same is for The Black Hills. The counties within The Black Hills have more butterfly species than other South Dakota counties because of their diversity of habitats.

Why is it important for kids to study butterflies? I strongly believe kids should have some kind of activity collecting things and they may even appreciate them as they get older. Butterflies and other insects are fascinating creatures that share this earth with us. Through collecting and studying butterflies one gains knowledge of our environment. I now appreciate and enjoy native prairies and its wildflowers a little bit more.

Advice to kids getting started as Lepidopterists?
~ Go for a "slow" walk and look closely at their surroundings
~ Become more observant of the little critters around you!
~ Study bugs close-up!
~ Rear larvae of such butterflies as the Monarch to appreciate their amazing life cycle
~ Research butterfly questions on the internet
~ Use a microscope to look at butterfly scales on the wings

Suggested reading by Gary:
Butterflies and Moths, Golden Guide
by Robert T Mitchell
Insects, Golden Guide
by Clarence Cottam and Herbert S Zim



Butterfly Activity Guide: Frequently Asked Questions

There are MANY questions that you'll have as you spend time watching butterflies. How many of these do you already know the answers to? Use this Butterfly Activity Guide and websites listed in the Resource Page to find explanations to the questions listed below! Good luck, and start keeping your own list of things to wonder about!

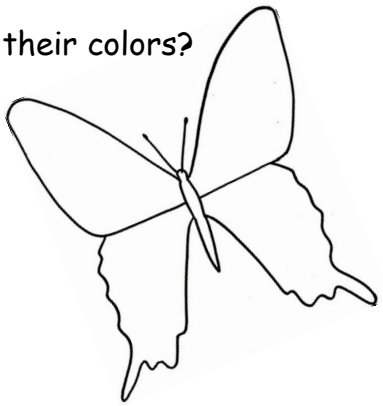
How can we help butterflies to survive and thrive?

What are the basic needs of butterflies at each stage of their lives?

Do all butterflies migrate? If so, how long does it take?

Why do some species migrate south for the winter?

Why are some butterflies so colorful? How do they get their colors?



How long do butterflies live?

Do butterflies make good pets?

How can I attract more butterflies to my house?

How can I tell male butterflies from females?

Do butterflies sleep?

If you touch a butterflies wings will they die?

Why are butterflies "prettier" than moths?

Why do many butterflies have spots that look like eyes on their wings?

How big is the largest butterfly found outside the U.S.?

What does the inside of a chrysalis look like?

What does butterfly poop look like?

Why can't caterpillars just stay caterpillars forever?

Why don't caterpillars look anything like the butterflies they turn into?

Why do we find butterflies in groups around mud puddles?

Why are some butterflies endangered, and some are just fine?

How do brightly colored butterflies keep from being spotted by birds and being eaten?

Do butterflies really have ultraviolet vision?

Butterfly Activity Guide: Heading into the Field!

Before you head into the field… here are some tips for observing butterflies!

~ When you see a butterfly, notice at least three things about it that may make it different from other species, such as the colors and patters you saw on it. This will help when trying to identify it later.

~ Venture out in the early morning and late afternoon. Make no sudden movements as you silently walk slowly. Be sure to avoid making a shadow on the butterflies as it could cause them to fly.

~ Grab your gear! Bring binoculars, a camera, a hand lens, paper, and pencil for notes.

~ Getting close? You'll need a butterfly net and a collection jar.

~ Be sure to print a few **Journal Pages** to record your observations!

When using the **Natural History Pages** for the 13 butterfly species:

~ Use along with pics/drawings from field guides or online
~ Notice the wingspan, range maps, and calendar to help with identification
~ Read the "Cool!" info for meaningful facts!

How fast is that butterfly flying?

First measure the flight time between two points. Then, measure the distance between those two points. Divide the distance by the time you recorded and you will have the speed the butterfly was flying past you! Rate= Distance/Time

Once you return from the field…

Use your journal notes, sketches and photographs to learn more about what you found!

The following pages will assist you!

~ Glossary ~ to help define unfamiliar words

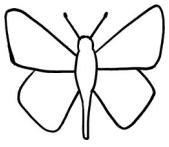
~ Butterfly Life Cycle

~ Butterfly Anatomy

~ Natural History Pages of 13 species

Your next adventure...

Feel free to daydream about being outside and walking though prairies and parks in search of butterflies! Create a wishlist of places you would like to visit. Plan your next trip to a new location that may offer new species! Be sure to always tell someone else where you are heading to, and bring a friend with you… they just might get hooked as well!!



Butterfly Activity Guide: Butterfly Observations: Journal Page

Species: _____

List three traits observed:

(ie: colors, patterns, size…)

~ _____

~ _____

~ _____

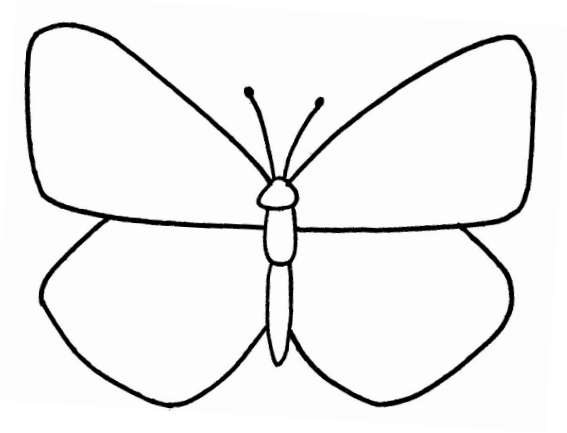
Date: _____Time: _____

Location: _____

Weather conditions during observations:

sunny, cloudy, hot, cold, windy, rainy

Sketch the traits you observed on the butterfly



Describe the butterfly's activity:

- fly, drink, rest, feed?

_____

_____

_____

- What was the reason for this behavior?

_____

_____

_____

What type of plant was it on?

- tree, shrub, grass
- name of the plant?

_____

Make a sketch of the plant:

I Wonder…

Where was this animal in the **past** few months? _____

_____

What will this animal be doing in the **next** few months? _____

_____

_____

Butterfly Activity Guide: Butterfly Conservation Activity

SD SCIENCE STANDARDS 4.L.2.2, 5.L.3.1, 6.S.2.1, 7.L.3.1, 7.S.2.1

OBJECTIVES Students will discuss the importance of habitat for the survival of butterflies. Students will understand that butterfly habitat is used by many other animals.

MATERIALS Butterfly Natural History Pages
Curriculum Guides listed on the Resource Page

ACTIVITY IDEAS

1. Students define conservation and identify why it is important. Students define urban expansion and identify the reasons for it.
2. Student use the Natural History Pages "Where to Look" information to determine how urban expansion could affect habitats used by butterflies.
3. Students predict how future urban expansion may affect species of butterflies that are not currently ranked as threatened or endangered in South Dakota.
4. Students identify methods of conscientious urban development to decrease human impact on the environment such as urban planning.
5. Students take photographs of local natural areas and discuss what they see with the class. What animals, including other invertebrates, also utilize that area?

We see butterflies pass by us in parks, in our backyards, at flowers in gardens near homes, and as we walk to school. People like butterflies, and we have drawings of them on our clothes, on our jewelry, on our shower curtains, and doodled on our school notebooks. To save these beautiful butterflies, we need to save habitat. Plants are necessary for butterfly survival. The flowers are needed for adults to nectar, eggs need to be laid on the plant, the leaves to feed caterpillars, for attachment of the chrysalis, and adults roost on them as well. What habitats are disrupted, the plant diversity decreases and the butterflies and other animals suffer. Native plant communities are needed for native butterflies!

Butterfly Activity Guide: Butterfly Classification Activity

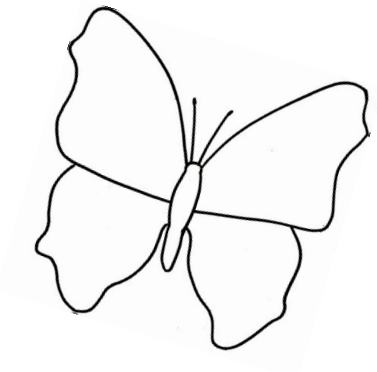
SD SCIENCE STANDARDS 4.L.1.2, 6.L.1.2, 7.L.1.3

OBECTIVES Students will understand the relationship between butterflies and moths. Students will study the scientific classification of the 5 common families of butterflies in South Dakota. Students will study the classification of 13 species of butterflies in South Dakota.

MATERIALS Butterfly Anatomy Page
Families of Butterflies Table
Scientific Classification Table

ACTIVITY IDEAS

1. Students locate trends in the classification table then compare and contrast their findings. (Examples: Butterflies and moths are in the same Kingdom and Phylum as some other invertebrates. Order Lepidoptera is made up of butterflies and moths and the highlighted 13 species in this guide are part of 5 families of butterflies. Most are Brushfoots and some have similar Genus names.)
2. Students determine the importance of having a classification system for living things. (Management for organization, classification, and for uniform scientific communication. The family names for butterflies are the same worldwide!)
3. Looking at photographs or sketches of butterflies, students compare their traits. Students create a dichotomous key by placing the photos into categories based on physical traits they observe.



Butterfly Activity Guide: Butterfly Life Cycle

Adult

"reproduce!"

~ Fully formed butterfly crawls out of split in the chrysalis

~ fluids pump from the body into expanding wings

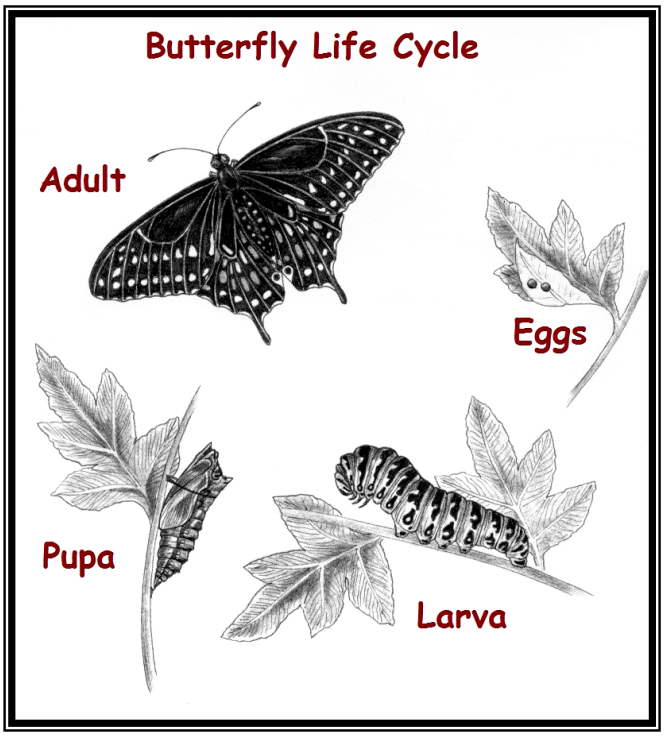
~ as soon as adults can fly courtship begins

~ live 25-30 days and some for several months

Complete Metamorphosis = 4 stages

1 cycle = 1 generation

Which species in South Dakota have more than one generation per summer?



Depending on the species of butterfly, each of the four life cycle stages can be found overwintering here in South Dakota!

Check out the Natural History pages to determine which species matches up with each stage.

Eggs

"develop!"

~ Female lays eggs

~ eggs laid mostly on plants that the larvae will eat

~laid individually, in small clusters, or in one egg mass

~ hatch in 8-10 days

Pupa

"change!"

~ Resting stage for caterpillar to transform into adult

~ the chrysalis offers protection

~ 8-14 days in this stage

~ some overwinter in this stage

Larva

"eat!"

~ A caterpillar eats and eats and eats!

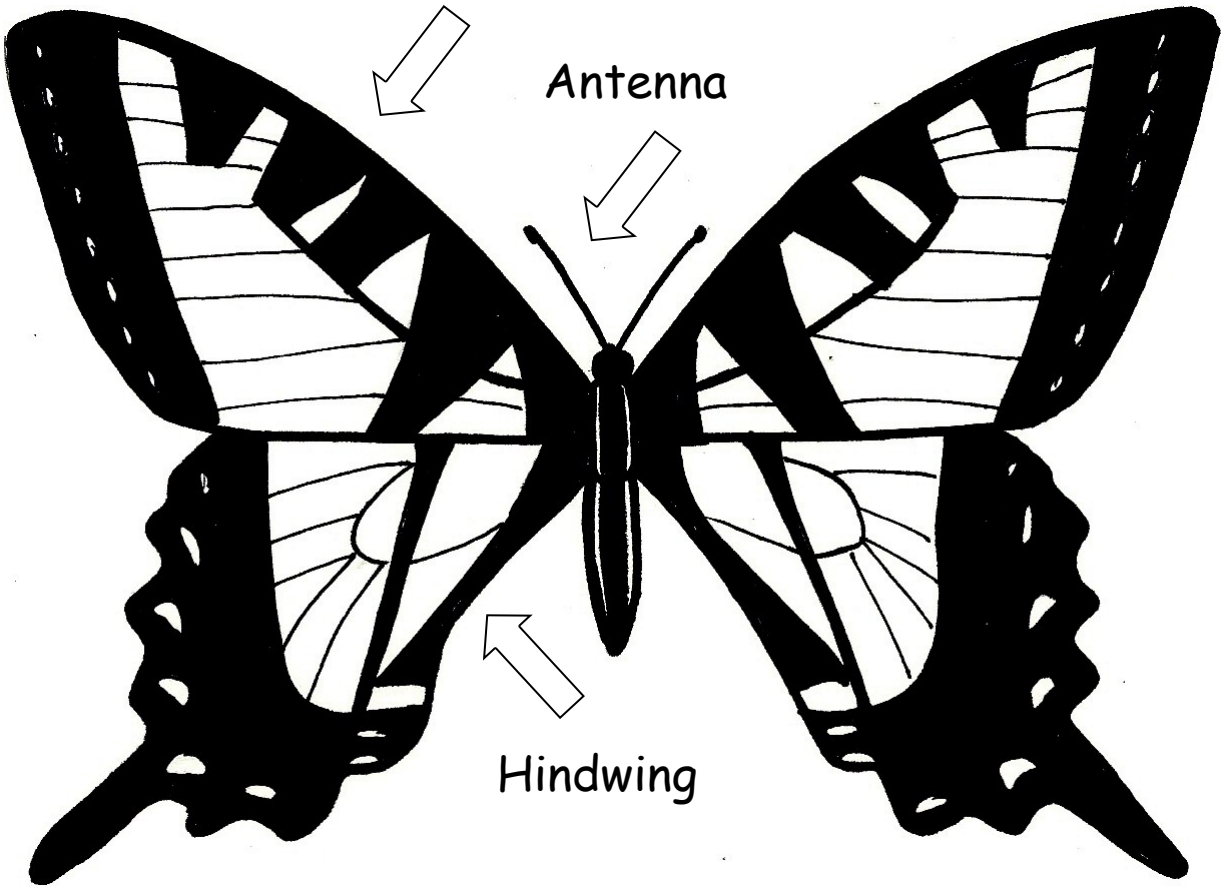
~sheds skin as it grows

~ look different for each species

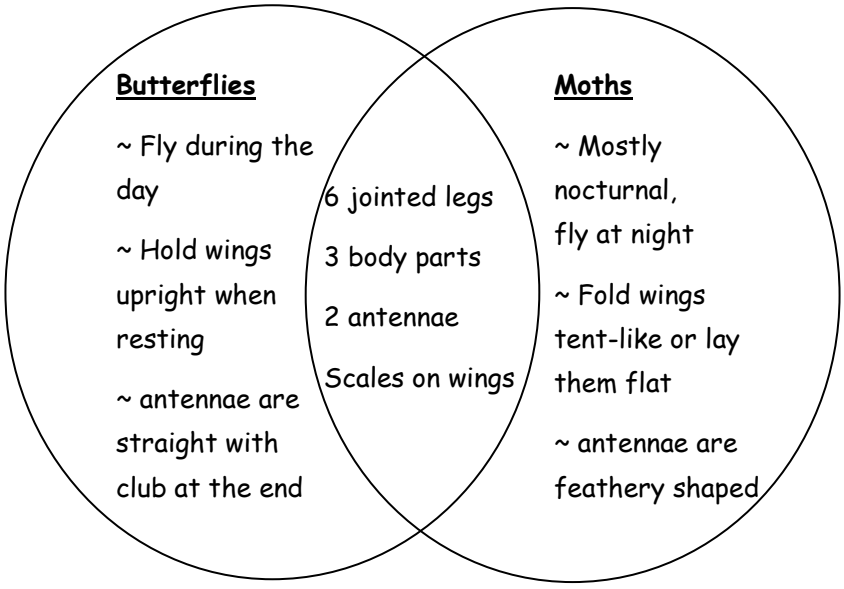
~ this stage lasts around 30 days

Butterfly Activity Guide: Butterfly Anatomy

Look! The upper and lower sides of the wings often have different colors and markings. Which side is usually brighter than the other?



Remember, as with most things in nature, there are exceptions to the "rules"… some moths fly during the day!



Order Lepidoptera = "scaled wings"

Butterflies and moths are the only insects with scales on their wings!

Butterfly Activity Guide: Plants of the Prairie Butterfly Garden

Plant species present in garden

Black Sampson *Echinacea angustifolia*

Anise/Lavender Hyssop *Agastache foeniculum*

Purple Prairie Clover *Dalea purpurea*

Heath Aster *Aster ericoides*

Wild Licorice *Glycyrrhiza lepidota*

Dotted Gayfeather *Liatris punctata*

Butterfly Milkweed *Asclepias tuberosa*

Swamp Milkweed *Asclepias incarnata*

Leadplant *Amorpha canescens*

Stiff Sunflower *Helianthus rigidus*

Aromatic Aster *Aster oblongifolius*

Wild Bergamot *Monarda fistulosa*

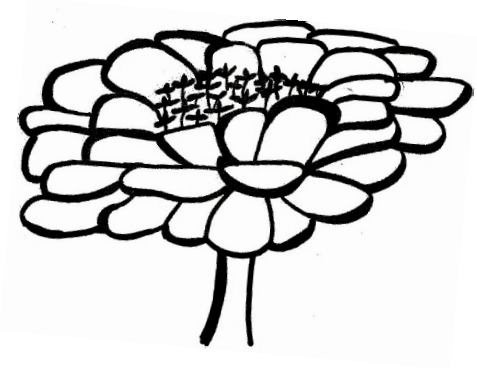
Birdsfoot/Crowfoot Violet *Viola pedatifida*

Textile Onion *Allium textile*

Buffalo Bean *Astragalus crassicarpos*

Hoary Vervain *Verbena stricta*

Showy Beardtongue *Penstemon grandiflorus*



Pollination:

What is pollination?

What is a butterfly's role?

Celebrate National Pollinator Week!
http://www.fws.gov/pollinators/

Other plants in the garden include dill, cosmos, and a variety of annuals.

Check the Natural History Pages to determine which plants are preferred by each butterfly species.

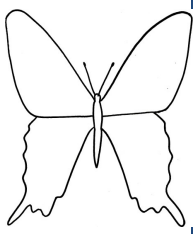
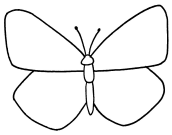
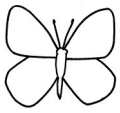
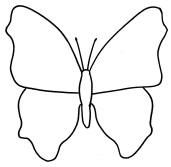
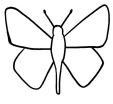
COOL!!!

Some plants are used by adults to lay the eggs on, then eventually the caterpillars feed on that plant.

While the adult is looking to feed on nectar, they may visit the flowers of a different species of plant.

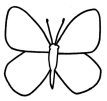
Butterfly Activity Guide: Families of Butterflies

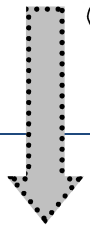
There are five families of butterflies commonly found within South Dakota. They are grouped by distinct traits in each stage of their life cycle. The number of species Worldwide, in North America, and in South Dakota vary as new ones are discovered!

	Family Name	# of Species	Egg	Larvae	Pupa	Adult
	**Papilionidae**: Parnassians and Swallowtails	W: ~ 570 NA: ~ 40 SD: 14	- Usually laid individually on a variety of plants	- Young are black and white resembling bird droppings	-Swallowtails overwinter in this stage -On twig, and silk girdle near head	-Large and most colorful -"tail" on hindwing
	**Pieridae**: Whites and Sulphurs	W: ~ 1200 NA: ~ 65 SD: 23	-Laid individually	-Feed mainly on plans in the bean and mustard families	-On twig, and silk girdle near head	-Medium sized -White, yellow, black markings
	**Lycaenidae**: Harvesters, Coppers, Hairstreaks and Blues	W: ~ 4000 NA: ~150 SD: 31	-Laid individually on leaves or flower buds	-Short, flat, covered with fine hairs	-Short , round, covered with hairs	-Most small and delicate -Front legs of male lack claws
	**Nymphalidae**: Brushfoots	W: ~ 5000 NA: ~ 220 SD: 57	-Variety of egg types	-Branching spines	-Angular with warty humps -Hang upside-down without silk girdle	-Traits vary -Front legs reduced in size = brushfoots!
	**Hesperiidae**: Skippers	W: ~ 3700 NA: ~ 300 SD: 51	-Laid individually	-Smooth, green and brown -Large head	-Smooth -Found inside a leaf nest	-Small-med size -Dull colors, large heads, stout bodies

Butterfly Activity Guide: Scientific Classification

	Butterflies & Moths	**Crayfish**	**Spiders**
Kingdom	Animal	Animal	Animal
Phylum	Arthropod	Arthropod	Arthropod
Class	Insect	Crustacean	Arachnid
Order	Lepidoptera	Decapod	Araneae
Family			
Genus			
Species			



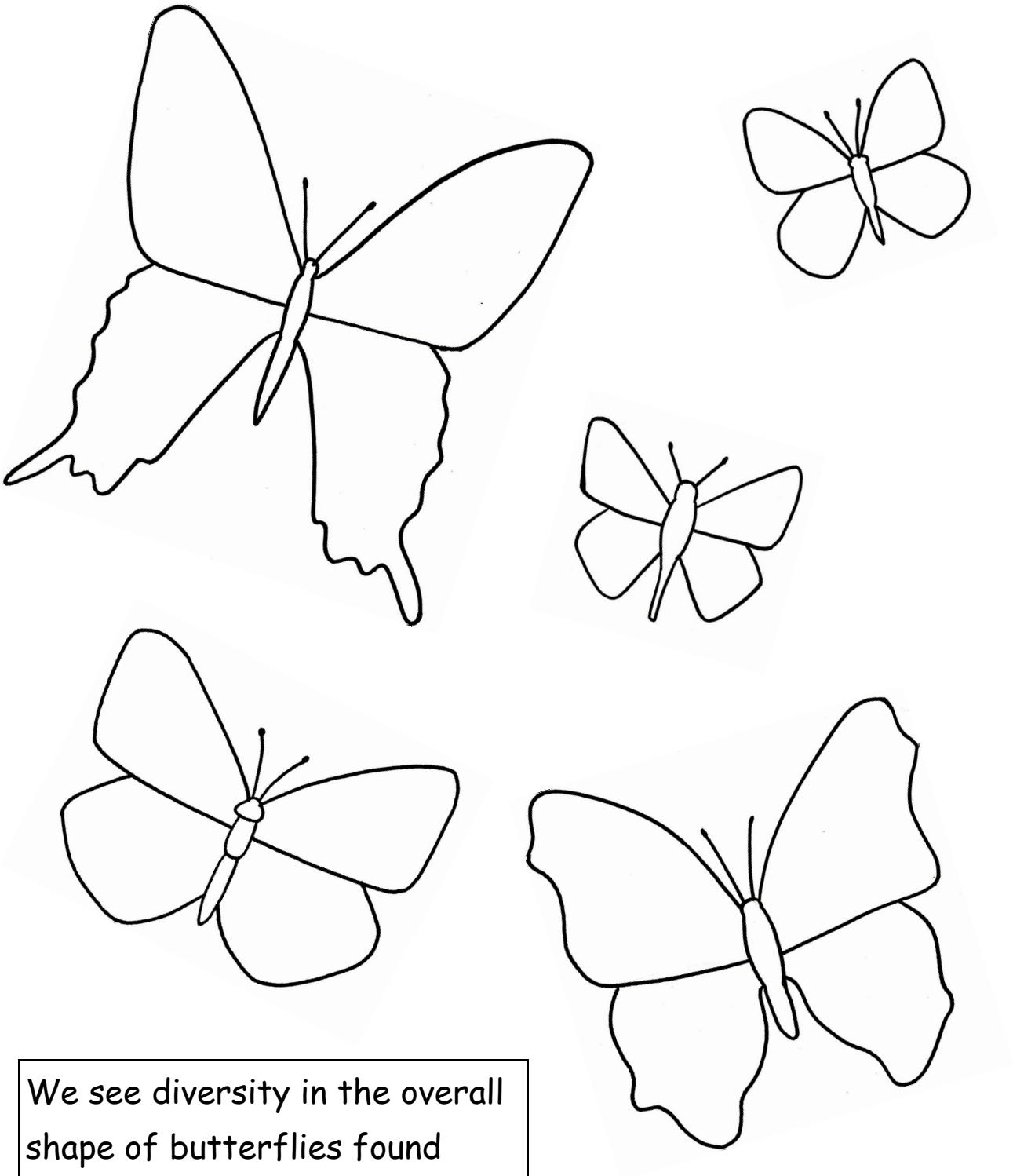


Common Name	**Family Name**	**Genus and Species Names**
Eastern Tiger Swallowtail	Papilionidae: Swallowtails	*Papilio glaucus*
Clouded Sulphur	Pieridae: Sulphurs	*Colias philodice*
Melissa Blue	Lycaenidae: Blues	*Lycaeides melissa*
Regal Fritillary	Nymphalidae: Brushfoots	*Speyeria idalia*
Question Mark	Nymphalidae: Brushfoots	*Polygonia interrogationis*
Eastern Comma	Nymphalidae: Brushfoots	*Polygonia comma*
Mourning Cloak	Nymphalidae: Brushfoots	*Nymphalis antiopa*
Red Admiral	Nymphalidae: Brushfoots	*Vanessa atalanta rubria*
Painted Lady	Nymphalidae: Brushfoots	*Vanessa cardui*
Common Wood-nymph	Nymphalidae: Brushfoots	*Cercyonis pegala nephele*
Monarch	Nymphalidae: Brushfoots	*Danaus plexippus*
Poweshiek Skipperling	Hesperiidae: Skippers	*Oarisma poweshiek*
Dakota Skipper	Hesperiidae: Skippers	*Hesperia dacotae*

The first eleven species in the table are possible to find in the prairie butterfly garden.
The last two listed are federal candidates for the Endangered Species Act, not in Central SD.
The Regal Fritillary is listed as Rare in South Dakota.

How many different families of butterflies are there in SD?
Which butterflies have a similar Genus name? Look up photos of them to determine why.

Butterfly Activity Guide: Butterfly Families Coloring Page

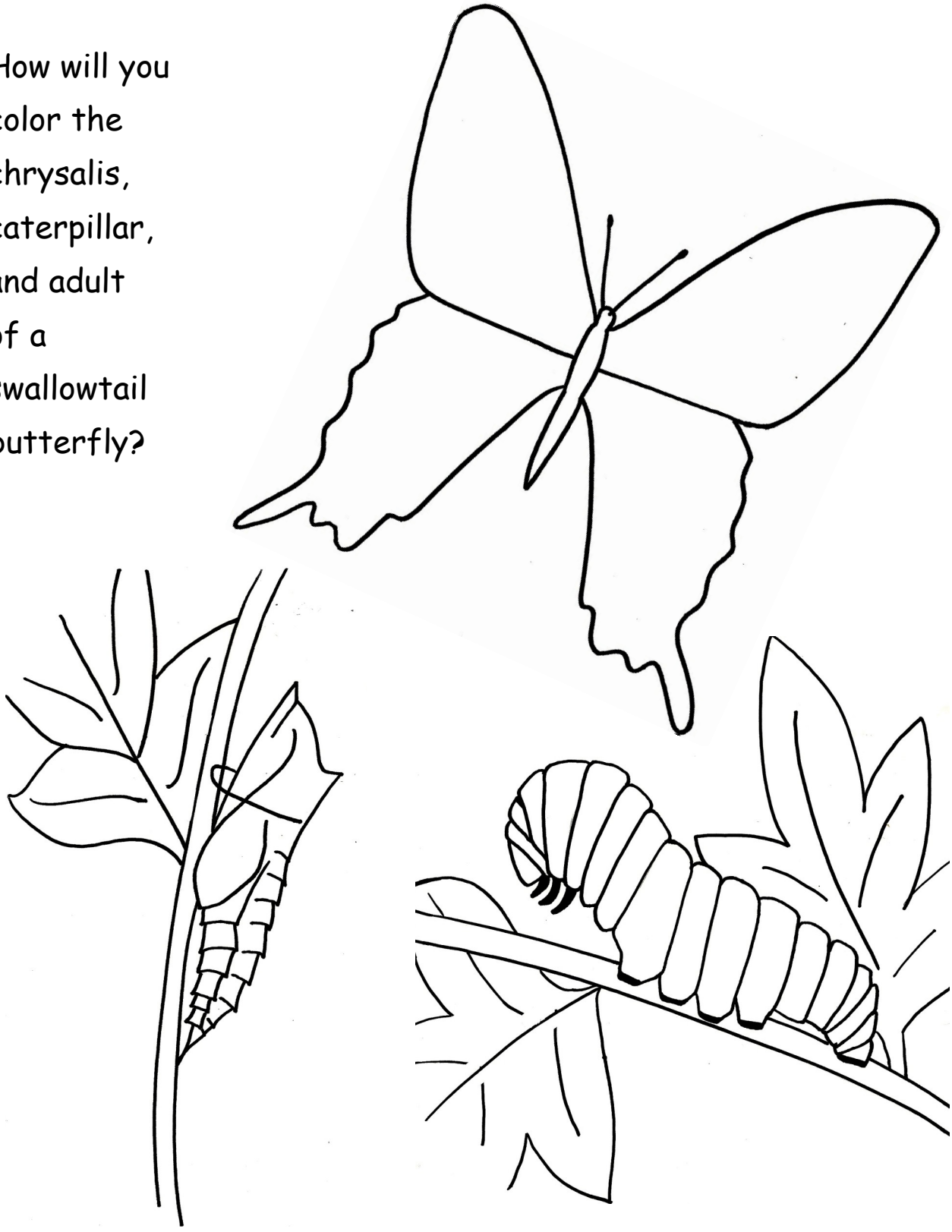


We see diversity in the overall shape of butterflies found here in South Dakota!

Visit the South Dakota Prairie Butterfly Garden in the Oahe Downstream Recreation Area
http://www.fws.gov/southdakotafieldoffice/Butterfly_Garden.html

Butterfly Activity Guide: Swallowtail Life Cycle Coloring Page

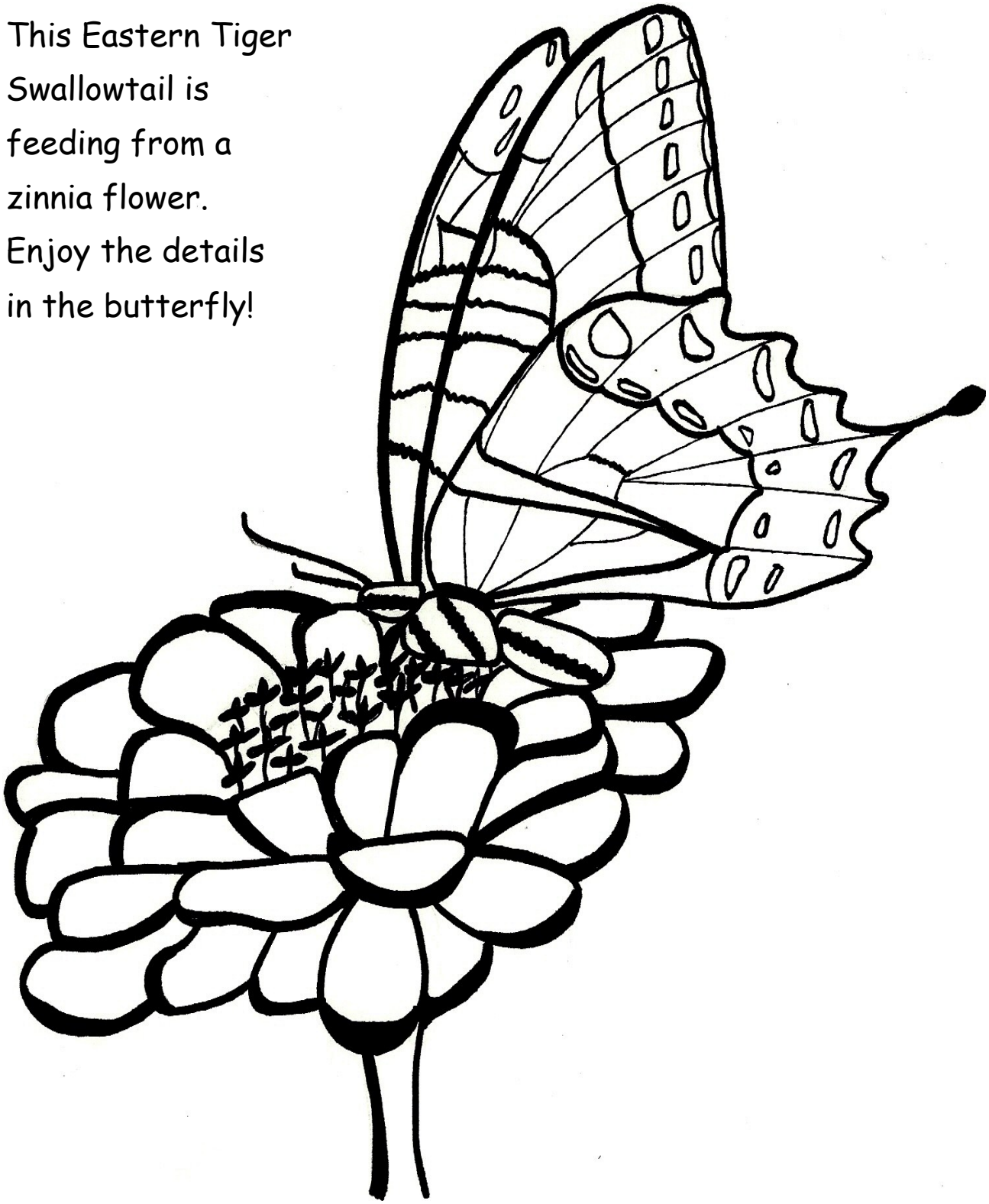
How will you color the chrysalis, caterpillar, and adult of a swallowtail butterfly?



Visit the South Dakota Prairie Butterfly Garden in the Oahe Downstream Recreation Area
http://www.fws.gov/southdakotafieldoffice/Butterfly_Garden.html

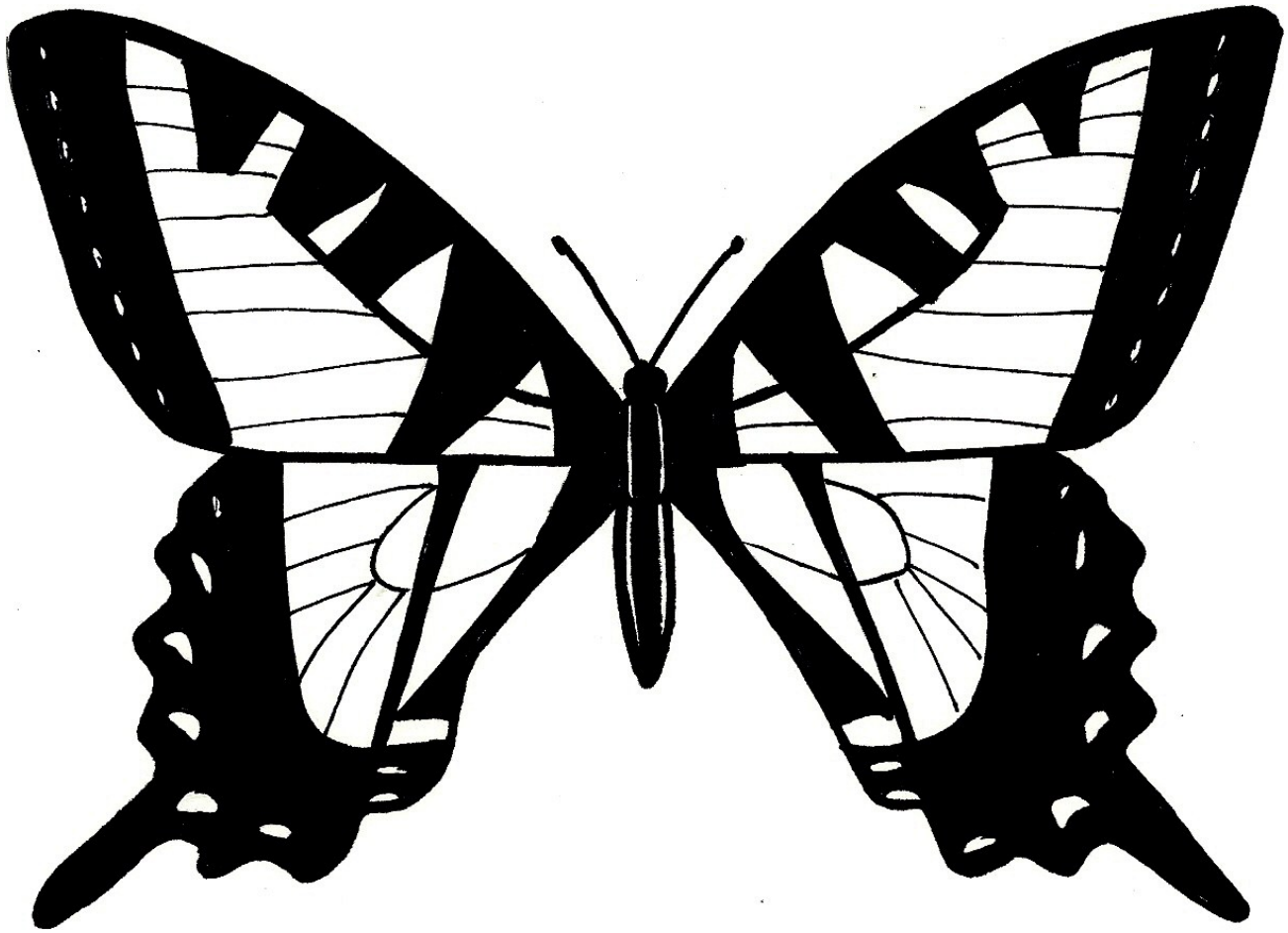
Butterfly Activity Guide: Swallowtail Coloring Page

This Eastern Tiger Swallowtail is feeding from a zinnia flower. Enjoy the details in the butterfly!



Visit the South Dakota Prairie Butterfly Garden in the Oahe Downstream Recreation Area
http://www.fws.gov/southdakotafieldoffice/Butterfly_Garden.html

Butterfly Activity Guide: Eastern Tiger Swallowtail Coloring Page



Visit the South Dakota Prairie Butterfly Garden in the Oahe Downstream Recreation Area
http://www.fws.gov/southdakotafieldoffice/Butterfly_Garden.html

Eastern Tiger Swallowtail (*Papilio glaucus*)

Look for:

The largest of our common butterflies.

Yellow with **black tiger stripes** in both sexes. Underside of wings have a row of yellow spots on the forewing and an orange spot on the hindwing.

Wingspan: 3.25 – 4.5 inches

What's in a name?

~ "Papilio" is Latin for butterfly.

~ Birds called swallows have long tails

Important Plants:

Adult nectar sources:

lilac, dandelion, milkweeds, alfalfa, thistles

Larva food sources:

chokecherry, green ash

COOL!

~ Caterpillar hides in a folded leaf for protection

~ Overwinters as a chrysalis

~ There is a dark form of this species that is all black

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

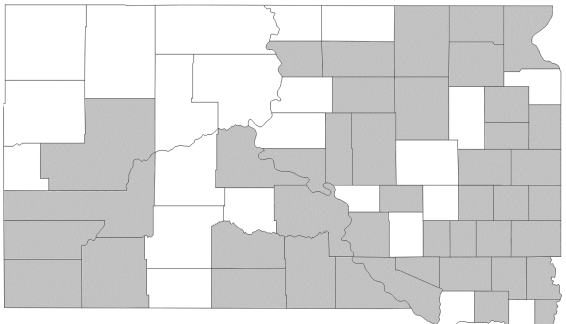
CHRYSALIS → ← ADULTS FLY → ← CHRYSALIS

Where to Look?

Common in eastern SD.
Occasional in western SD.

Deciduous forests, riparian areas, but also urban areas, including yards and gardens.

Near mud puddles, manure and carrion



Species present in shaded area

Clouded Sulphur *(Colias philodice)*

Look for:

The male is **yellow with black wing edges**. The female can be either yellow or white. Undersides of both sexes have several small black or brown spots on both wings.

Wingspan: 1.5 – 2 inches

What's in a name?

~ Sulphur, or sulfur, is a bright yellow mineral

~ Also called the Common Sulphur

Important Plants:

Adult nectar sources:

dandelions, asters, coneflowers, clovers

Larva food sources:

alfalfa, white clover, legumes, vetches

COOL!

~ Young males gather in great swarms at mud puddles

~ Three broods in one summer

~ The Orange Sulphur looks similar and is also common in South Dakota

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

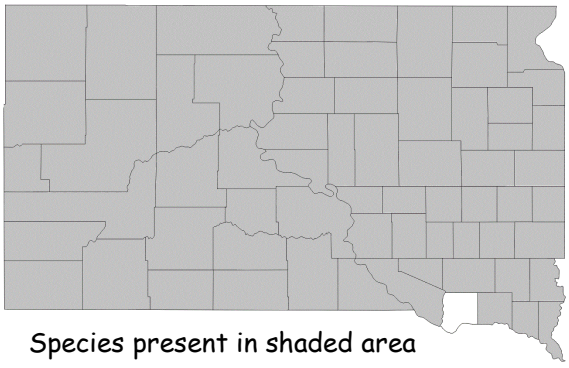
CHRYSALIS → ← ADULTS FLY → ← CHRYSALIS

Where to Look?

Common and widespread throughout SD

Open areas, grasslands, alfalfa fields, mountain meadows, and roadsides

Seen most often at mud puddles



Species present in shaded area

Melissa Blue *(Lycaeides melissa)*

Look for:

Male is dark blue with very narrow black wing edges. **Females are brown**, often dusted with blue. The undersides of both sexes are light gray with black spots and an orange band along the edge of each wing.

Wingspan: 0.9 – 1.2 inches

What's in a name?

~ The subspecies Karner Blue, is an endangered species.

~ The upperside of the male is dark blue

Important Plants:

Adult nectar sources:

coneflowers, alfalfa, clovers, asters

Larva food sources:

legumes, silvery lupine, white crazy weed, wooly locoweed, American licorice, alfalfa

COOL!

~ Found at mud puddles with other species

~ Larva seldom eat completely through a leaf

~ South Dakota's most common species of "Blue"

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

EGG ← ADULTS FLY → EGG

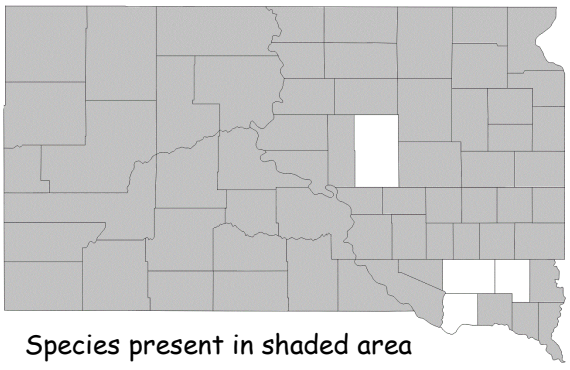
Where to Look?

Throughout SD

Most common species of blue

Open areas such as prairies, meadows, pastures, alfalfa fields, and weedy patches

Flies quickly near ground in open places



Species present in shaded area

Regal Fritillary *(Speyeria idalia)*

Look for:

Forewing is **reddish orange with black markings**. Hindwings are velvety black with two rows of spots; the underside of the hindwing is brown with **large silver spots**.

Wingspan: 2.9 - 3.8 inches

What's in a name?

~ Fritillary is from the Latin word *fritillus*, and refers to the spotted pattern on the wings

Important Plants:

Adult nectar sources:

purple coneflower, gayfeather, alfalfa, hoary vervain, thistles, wild bergamot

Larva food sources:

violets

COOL!

~ Female deposits eggs always near violets

~ Larvae feed at night on the leaves

~ Caterpillar overwinters on the ground beneath leaves

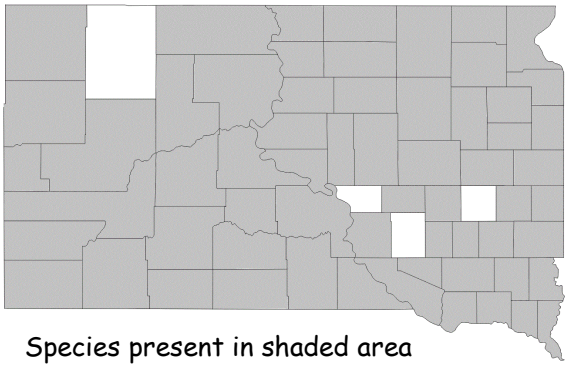
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

CATERPILLAR → ADULTS FLY ↔ CATERPILLAR ←

Where to Look?

Common in northeastern SD.
Occasional in western SD.

Tall grass sites near marshes, undisturbed mixed- grass prairie along Missouri River (Native grasslands)



Species present in shaded area

Question Mark *(Polygonia interrogationis)*

Look for:

Dark **orange brown wings** with distinct **black spots** and black wing edges with short hindwing projections. Brown to grey mottled undersides. There is a **pearly silver shape resembling a question mark** in the center of its underwing.

Wingspan: 2.25 - 3 inches

What's in a name?

~ To "interrogate" means to ask questions, hence the species name

~ "Polygonia" means "many angles" referring to the notches of different sizes on the wing edges

Important Plants:

Adult nectar sources:

rotting fruit, tree sap, animal droppings, carrion

Larva food sources:

elm, nettles, hackberry

COOL!

~ This butterfly is rarely seen nectaring on wildflowers

~ Adults migrate and overwinter outside S.D., in warmer states

~ The summer and winter forms differ in color and wing shape

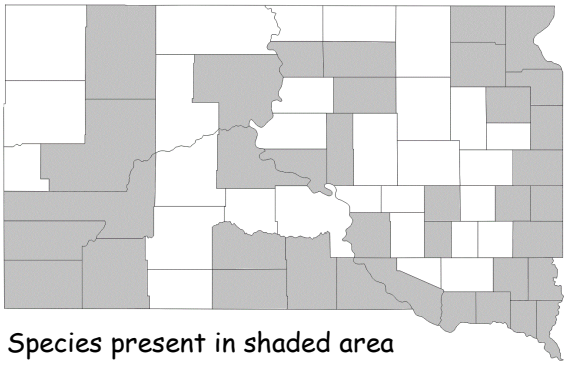
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

ADULTS MIGRATE ← → ADULTS FLY ← → ADULTS MIGRATE

Where to Look?

Throughout SD.
More common east of the Missouri River.

Open wooded areas along rivers and streams, city parks, gardens, and orchards



Species present in shaded area

Eastern Comma *(Polygonia comma)*

Look for:

Dark **orange brown wings** with distinct **black spots** and black wing edges with short hindwing projections. Brown to grey mottled undersides. There is a **pearly silver shape resembling a comma** on the underside of the hindwing.

Wingspan: 1.75 - 2.5 inches

What's in a name?

~ "Polygonia" means "many angles" referring to the notches of different sizes on the wing edges

~ The "comma" on the hindwing is challenging to see

Important Plants:

Adult nectar sources:

rotting fruit, tree sap, animal droppings, carrion

Larva food sources:

elm, nettles, hackberry

COOL!

~ Often seen when snow is still on the ground in spring

~ Seen singly along wooded edges

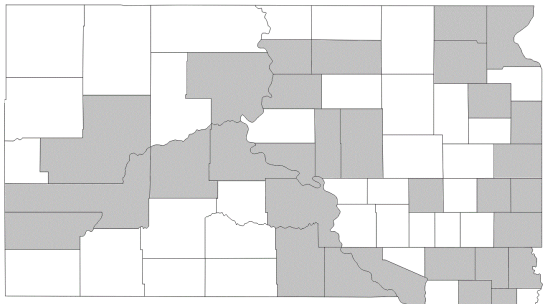
~ There are other "Comma" species that are similar looking

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ADULTS →				ADULTS FLY ↔						← ADULTS	

Where to Look?

Common in eastern SD.
Uncommon in western SD.

Deciduous woods especially along rivers and streams



Species present in shaded area

Mourning Cloak *(Nymphalis antiopa)*

Look for:

Dark purplish brown with a wide, **creamy yellow border** on both wings and a row of bright iridescent blue spots at the inner edge of the border. Undersides are blackish brown with thin, wavy striations. **Irregular wing margins.**

Wingspan: 2.25 – 3.5 inches

What's in a name?

~ If someone is in mourning, they often wear dark colors

~ A cloak is a sleeveless coat wrapped around a person

Important Plants:

Adult nectar sources:

tree sap, rotting fruit, occasionally flower nectar

Larva food sources:

willows, quaking aspen, plains cottonwood, paper birch, elm, hackberry

COOL!

~ First butterfly each spring, often when snow is still on the ground

~ Hibernate overwinter as an adult

~ There are no similar looking species, helping with identification

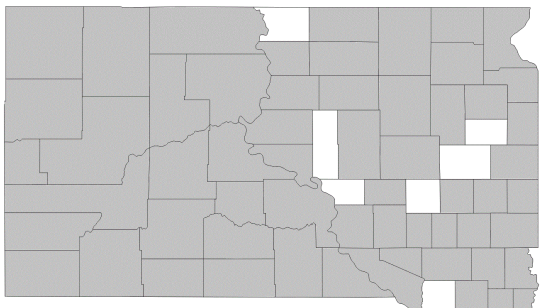
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

ADULTS → ← ADULTS FLY → ← ADULTS

Where to Look?

Common throughout SD.

Riparian areas, woods, shelterbelts, suburbs, parks



Species present in shaded area

Red Admiral *(Vanessa atalanta rubria)*

Look for:

Black with white spots and a **red-orange band** in the center; hindwing edge with red-orange band. The underside of the hindwing is mottled and lacks the red band.

Wingspan: 1.75 – 2.5 inches

What's in a name?

~ Named "admiral" for the broad bands on the wings, like those that show rank on the shoulders of Navy officers

Important Plants:

Adult nectar sources:

sap, rotten fruit, animal droppings

Larva food sources:

stinging nettles

COOL!

~ Caterpillars live singly in a folded leaf lined with silk

~ Adults migrate and overwinter outside S.D. in warmer states

~ There are no similar looking species, helping with identification

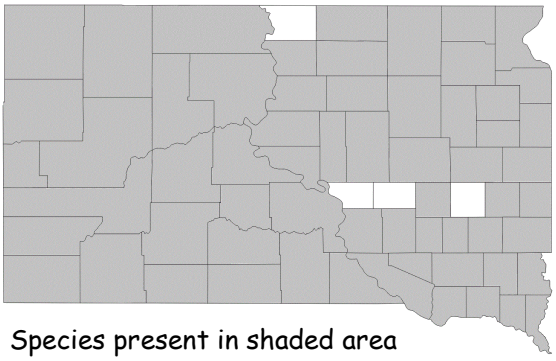
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

ADULTS MIGRATE ← → ADULTS FLY ← → ADULTS MIGRATE

Where to Look?

Common throughout SD.

Moist open woods and fields, marshes, alfalfa fields, parks, and urban gardens



Species present in shaded area

Painted Lady *(Vanessa cardui)*

Look for:

Pinkish orange or orange-brown with **dark markings**; forewing with a black patch near the tip containing **white spots**; hindwing edge with a row of black spots without blue centers. The underside of the hindwing edge has four **small eyespots**.

Wingspan: 2.0 - 2.75 inches

What's in a name?

~ Named "painted" for the detailed coloring on the underwings

~ Houses with intricate design are also called "painted ladies"

Important Plants:

Adult nectar sources:

thistles, asters, dandelions, zinnia, coneflowers, milkweeds, alfalfa, lilac

Larva food sources:

thistles, hollyhock, mallow, legumes, pearly everlasting

COOL!

~ Sometimes referred to as a Cosmopolite , because it is found nearly everywhere!

~ Found in nearly all habitats that are open and brightly lit

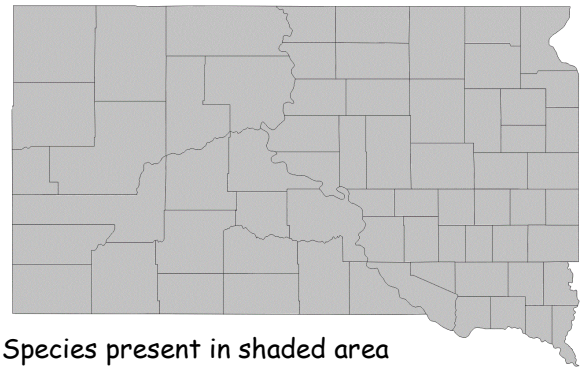
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

ADULTS MIGRATE ← ADULTS FLY → ADULTS MIGRATE

Where to Look?

Widely distributed throughout SD.

Variety of habitats, open or disturbed areas, pastures, alfalfa fields, meadows, roadsides, gardens



Species present in shaded area

Common Wood-nymph *(Cercyonis pegala nephele)*

Look for:

Brown wings. Males are much smaller than females and slightly darker in color. The male has **two black forewing eyespots**; female eyespots are large, ringed with light yellow, and surrounded by a pale patch. Undersides are dark to pale brown with darker striations.

Wingspan: 1.75 – 2.75 inches

What's in a name?

~ Also known as a Grayling, because of its overall color

~ Not found in wooded areas as the common name implies

Important Plants:

Adult nectar sources:

purple coneflower, wooly vervain, alfalfa

Larva food sources:

grasses, bluestem, porcupine grass

COOL!

~ Fast irregular flight

~ The eyespots on the wings help to scare off predators

~ Overwinter as a newly hatched, unfed caterpillar

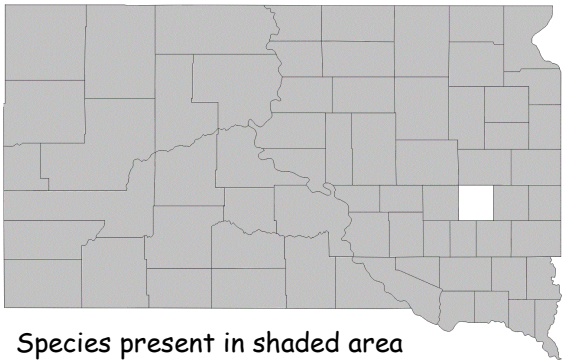
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

CATERPILLAR → ADULTS FLY ↔ CATERPILLAR ←

Where to Look?

Common throughout SD.

Meadows, grasslands, open fields, pastures, edges of marshes and woods



Species present in shaded area

Monarch *(Danaus plexippus)*

Look for:

Bright orange with black veins and black wing margins with **white spots**. The female has wider black veins than the male and the orange color is less bright.

Slow flight

Wingspan: 3.4 – 4.0 inches

What's in a name?

~ This orange and black butterfly was called Monarch, based on the King of Orange in England, 1689.

Important Plants:

Adult nectar sources:

common and swamp milkweed, gayfeather, thistles, joe-pyeweed, marigold, cosmos, zinnias

Larva food sources:

common, swamp and showy milkweeds

COOL!

~ Our South Dakota Monarchs overwinter in Mexico, and many make the return trip in the spring!

~ Some have been found 100's of miles into the Atlantic and Pacific Oceans

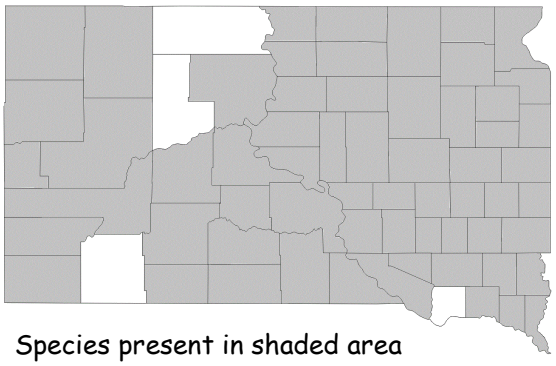
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

ADULTS MIGRATE → ← ADULTS FLY → ← ADULTS MIGRATE

Where to Look?

Common in eastern SD.
Less common in western SD.

Open areas, including pastures, prairies, marshes, weedy places, roadsides



Species present in shaded area

Poweshiek Skipperling *(Oarisma poweshiek)*

Look for:

Males and females are **dark brown**; the forewing's **upper edge is orange**. The underside of the hindwing is light brown with white veins, except the lower portion, which is brownish black.

Wingspan: 0.9 – 1.25 inches

What's in a name?

~ Poweshiek is a county in Iowa that is named after the chief of the Fox Indians.

~ Skipperlings are small skippers

Important Plants:

Adult nectar sources:

purple coneflower, black-eyed Susan, prairie coneflower, ox-eye daisy, white clover

Larva food sources:

sedges

COOL!

~ Found only in native tall-grass prairie, therefore populations are fragile

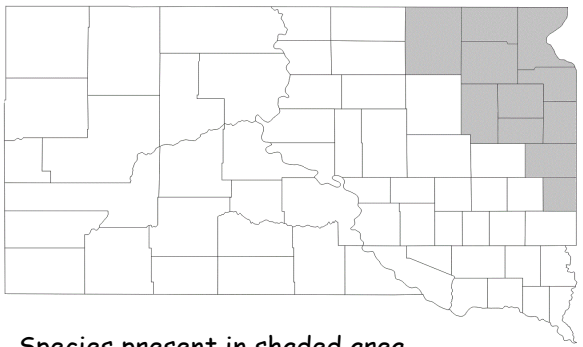
~ Monitored by the South Dakota Natural Heritage Program because of its rarity

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
CATERPILLAR →						ADULTS FLY ↔				← CATERPILLAR	

Where to Look?

Northeastern counties of SD.

Native tall-grass prairie near wetlands, such as Aurora Prairie Preserve in Brookings County.



Species present in shaded area

Dakota Skipper *(Hesperia dacotae)*

Look for:

The male is **bright tawny-orange** with a prominent, narrow patch of specialized scent scales; underside is yellow-orange with a pale spot band on the hindwings. The female varies from dark brown to tawny-orange; underside grayish.

Wingspan: 1.0 – 1.25 inches

What's in a name?

~ Skippers are named after their quick, darting flight habits.

~ There are over 30 species of skippers in South Dakota

Important Plants:

Adult nectar sources:

composite flowers such as purple coneflower, fleabane, black-eyed Susan

Larva food sources:

little bluestem, and other grasses

COOL!

~ Adults normally fly less than 1/3 mile during their lifetime.

~Monitored by the South Dakota Natural Heritage Program be-cause of its rarity

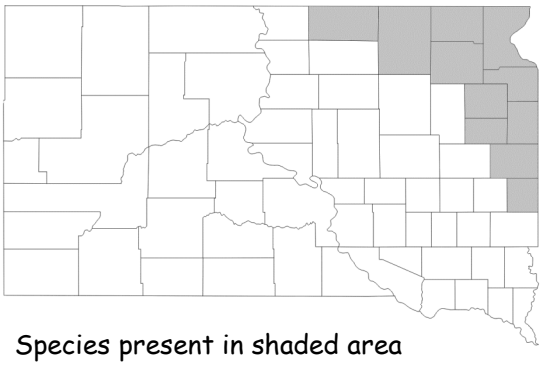
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

CATERPILLAR → ADULTS FLY ↔ CATERPILLAR ←

Where to Look?

Northeastern counties of SD.

Hilltops in rolling pastures near glacial lakes and wetlands



Species present in shaded area